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Monthly Report

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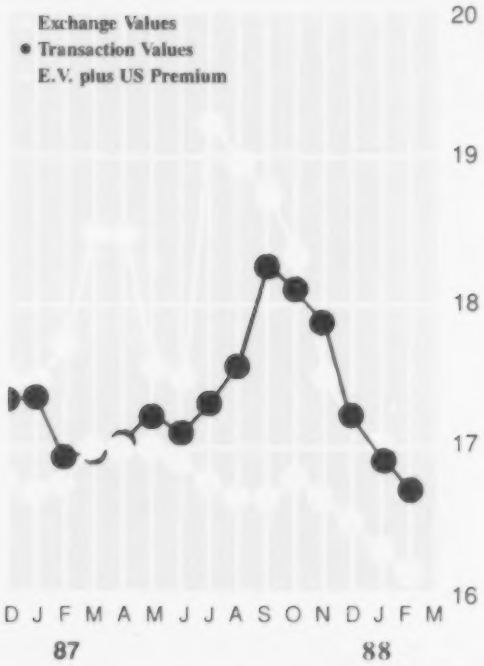

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EXECUTIVE SUMMARY
REPORT 235
(All data as of February 29, 1988)

Exchange Value
$16.15, down $0.15

The **Exchange Value** is **$16.15** per pound U_3O_8, down $0.15 since last month. The US Premium (relative to the Exchange Value) is $0.50, down $0.20 since last month.

UF_6 Value
$46.00, down $0.50

The **UF_6 Value** is **$46.00** per kg U as UF_6, down $0.50 since last month. The US Premium (relative to the UF_6 Value) is $1.25, unchanged since last month.

Transactions

Four recent natural uranium sales are reported, involving **less than 500,000** pounds equivalent U_3O_8. All of the sales involved spot or near-term delivery, and met the conditions for inclusion in the Transaction Value. Active spot and near-term **uranium supply** amounts to **6.6 million** pounds U_3O_8 equivalent, up 700,000 pounds since last month. Active spot and near-term **uranium demand** totals **2.5 million** pounds, up 870,000 pounds from last month. The spot and near-term **supply-demand ratio** decreased to **2.7 to 1**.

Transaction Value
$16.65, down $0.20

The **Transaction Value** is **$16.65** per pound U_3O_8, **down $0.20** since last month. The calculation includes 18 transactions involving a total of 2.4 million pounds U_3O_8 and equivalent UF_6 and covers a period of 3 months.

Loan Rate
3.5%, unchanged

The **Loan Rate** is **3.5 percent** per annum, unchanged. One loan transaction is reported.

Conversion Value
$1.80, down 0.10

The **Conversion Value** is **$1.80** per pound U as UF_6, down $0.10 since last month. Active secondary market supply for conversion services for delivery within three years totals 150,000 pounds U as UF_6. Active demand totals 915,000 pounds U as UF_6. One secondary market conversion transaction is reported.

SWU Value $73, unchanged

The **SWU Value** at .3% tails assay is **$73** per SWU, unchanged since last month. No secondary market SWU transactions are reported.

* * *

Basic Considerations

Numerous commercial and political factors affect transactions of natural uranium concentrates. Part one of this series examines some of these factors as they affect the part of the fuel cycle from mining through delivery at a conversion facility.

Raw Materials

Overall, 1987 uranium production fell about 2.5 percent from the previous year, to approximately 94.9 million pounds U_3O_8. Of the four leading uranium-producing nations, Australia, South Africa and the USA registered drops in output, while Canada, the leading producer, increased production in 1987.

Canada

The Canadian government has announced its intent to carry through a merger of Eldorado Resources and the Saskatchewan Mining Development Corportion (SMDC), by mid-1988. The proposed merger would create the world's largest uranium producing company.

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NUEXCO REPORT 235 FIGURES OF THE MONTH (February 29, 1988)	This Month (Report 235)	Last Month (Report 234)	12 Months Ago (Report 223)
Exchange Value ($US per pound U_3O_8)	16.15	16.30	16.75
US Premium for the Exchange Value ($US per pound U_3O_8)	0.50	0.70	1.00
UF_6 Value ($US per kg U as UF_6)	46.00	46.50	48.00
US Premium for the UF_6 Value ($US per kg U as UF_6)	1.25	1.25	2.50
Transaction Value ($US per pound U_3O_8 equivalent)	16.65	16.85	16.90
Loan Rate (Per Annum)	3.5%	3.5%	3%
Conversion Value ($US per pound U as UF_6)	1.80	1.90	1.80
Near-Term Uranium Supply[1] (millions of pounds U_3O_8)	6.6	5.9	3.4
Near-Term Uranium Demand[2] (millions of pounds U_3O_8)	2.5	1.6	2.3
Near-Term Supply-Demand Ratio	2.7	3.6	1.5
Recent Uranium Sales:[3]			
Number of Transactions	4	8	9
Quantity of Material (Millions of pounds U_3O_8 equivalent)	0.4	8.0	2.1
Nuexco SWU Value: ($US per SWU)			
at 0.3 tails assay	73	73	80
US DOE SWU Prices: ($US per SWU)			
USEC	117.00[4]	117.00[4]	119.00[5]
AFC	153.00[6]	153.00[6]	153.00[6]
Requirements	157.00[6]	157.00[6]	157.00[6]
Incentive Price	90.00[7]	90.00[7]	90.00[7]
Market Value of Enriched UF_6[8] ($US per kgU as UF_6)			
2.5 w/o U_{235}	433	436	459
3.0 w/o U_{235}	553	557	586
3.5 w/o U_{235}	676	681	719
4.0 w/o U_{235}	801	806	852

[1]Active inquiries to sell, for delivery within 12 months after contract signing.

[2]Active inquiries to purchase, for delivery within 12 months after contract signing.

[3]Uranium sales only; does not include loans, conversion, or SWU transactions.

[4]Effective since 10/1/87.

[5]Effective since 10/1/86.

[6]Effective since 10/1/84.

[7]Effective since 10/1/86, for up to 30% of annual requirements.

[8]Calculated using the Nuexco Exchange Value, Conversion Value, SWU Value and 0.30 percent tails assay.

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MONTHLY REPORT ON THE NUCLEAR FUEL MARKET

March 1988 No. 235

R. GENE CLARK, *EDITOR* CHARLES B. LEWIS, *ASSISTANT EDITOR*

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February 29, 1988	Market Values	Active Supply[1] (thousands)	Active Demand[1] (thousands)
EXCHANGE VALUE	**$16.15**/lb. U_3O_8	6,640[2]	2,500[2]
US Premium	**$0.50**		
UF_6 VALUE	**$46.00**/kg U as UF_6	6,640[2]	2,500[2]
US Premium	**$1.25**		
CONVERSION VALUE	**$1.80**/lb. U as UF_6	150	915
SWU VALUE			
0.3 tails assay:	**$73**/SWU	205	220
LOAN RATE	**3.5%**/annum	8,050	0

TRANSACTION VALUE

$/lb. U_3O_8	Millions of Pounds	Number of Transactions	Number of Months
16.65	**2.4**	**18**	**3**

[1]Supply and demand tables in the *Current Market Data* section of this Report detail the numbers for each category.
[2]For either uranium concentrates or uranium hexafluoride.

DEFINITIONS

1. The **Exchange Value** is Nuexco's judgment of the price at which transactions for significant quantities of natural uranium concentrates could be concluded as of the date indicated.
2. The **UF_6 Value** is Nuexco's judgment of the price at which spot and near-term transactions for significant quantities of natural uranium hexafluoride could be concluded as of the date indicated.
3. The **Conversion Value** is Nuexco's judgment of the price at which spot and near-term transactions for significant quantities of conversion services could be concluded in the secondary market as of the date indicated.
4. The **SWU Value** is Nuexco's judgment of the price at which spot and near-term transactions for significant quantities of enrichment services could be concluded as of the date indicated.
5. The **Loan Rate** is Nuexco's judgment of the annual interest rate at which uranium loans could be concluded as of the date indicated.
6. The **Transaction Value** is a weighted average price of recent natural uranium sales transactions. The calculation is based on prices paid in:
   a. Transactions closed within the previous three month period for which delivery is scheduled within one year of the transaction date;
   b. At least ten transactions;
   c. Transactions involving a sum total of at least 2 million pounds U_3O_8 equivalent.

The sample time is extended as necessary to include these minima. Other currencies are converted to US dollars using conversion rates in effect on or near the transaction date.
7. The **US Premium** is Nuexco's judgment of the incremental price (relative to the Exchange Value or UF_6 Value, as applicable) at which transactions for significant quantities of natural uranium could be concluded as of the date indicated, if the buyer will accept only US-origin.

DERIVATIONS AND COMMENTS

1. All Market Values are based on:
   a. Data from recently completed transactions.
   b. Data from pending transactions.
   c. Firm bids to buy or borrow, and firm offers to sell or lend.
   d. Prices purchasers or rates borrowers have expressed a willingness to pay, but for which Nuexco is not aware of firm bids to buy or borrow, and prices sellers or rates lenders have expressed awillingness to accept, but for which Nuexco is not aware of firm offers to sell or lend.
2. Prices associated with deliveries under old or renegotiated contracts or other than arm's-length transactions are not included in the determination of these Market Values.
3. In the determination of prices, Nuexco does not consider transportation charges other than those customarily provided by suppliers.
4. The prices of services or materials delivered under long-term contracts with primary suppliers are not considered in the determination of the listed values.
5. For the SWU Value, Nuexco converts SWU prices at varying tails and product assays to equivalent SWU prices at a tails assay of 0.30 weight percent U_{235} and a product assay of 3.0 weight-percent U_{235}, assuming feed costs corresponding to the Nuexco Exchange and Conversion Values determined as of the same date.
6. In calculating the Transaction Value, Nuexco does not account for the price of uranium delivered in connection with contracts which call for "market price" mechanisms. This exclusion applies particularly to contracts in which delivery prices are expressed as a function of future Exchange Values or any other indeterminate variable. Also excluded from the calculation are any other transactions in which the delivery price is defined in such a way that it cannot currently be determined.

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NATURAL URANIUM AND SECONDARY MARKET CONVERSION

(All data as of February 29, 1988)

The **Exchange Value** is **$16.15** per pound U_3O_8, down $0.15 since last month. US-origin uranium is commanding a **premium** (relative to the Exchange Value) of **$0.50** per pound U_3O_8 (down $0.20) in the form of concentrates, and **$1.25** per kilogram U (unchanged) in the form of UF_6.

Active supply of natural uranium (concentrates and UF_6) for spot or near-term delivery totals **6,640,000** pounds U_3O_8 equivalent, up 700,000 pounds since last month. The corresponding figure for **active demand** is **2,500,000** pounds, up 870,000 pounds. The spot and near-term supply-demand ratio is to 2.7, down from 3.6 at the end of January.

The *Current Market Data* section of this Report lists four natural uranium sales, totaling approximately 400,000 pounds U_3O_8 equivalent.

The **Transaction Value** is **$16.65** per pound U_3O_8, down $0.20 since last month. The calculation extends over a 3-month period and includes 18 transactions involving 2.4 million pounds equivalent U_3O_8.

The **UF_6 Value** is **$46.00** per kilogram U in UF_6, down $0.50 since last month. Three transactions involving UF_6 are reported, totaling less than 400,000 pounds equivalent U_3O_8.

The **Conversion Value** is **$1.80** per pound U as UF_6, down $0.10 since last month. Active supply of secondary market conversion services totals 150,000 pounds U as UF_6. Active demand totals 915,000 pounds U as UF_6. One secondary market conversion transaction is reported.

The **Loan Rate** is **3.5 percent** per annum, unchanged since last month. One loan transaction is reported.

* * *

The **Exchange Value** declined $0.15, to $16.15 per pound U_3O_8 during February. The market for natural uranium concentrates was relatively inactive in February with only one transaction involving concentrates reported, for less than 100,000 pounds. One large transaction also was near conclusion at the end of the month. Demand for concentrates has increased since last month, but consists mainly of US utilities evaluating discretionary purchases. In addition, at least three potential US buyers have indicated that they might purchase non-US-origin material for 1988 delivery, and in some cases might consider natural UF_6 instead of concentrates. Given the discretionary nature of this demand, some sellers have further discounted their material in hopes of making a sale, contributing to the downward pressure on the Exchange Value. Buyers seeking smaller quantities of material appear to have the best chance of obtaining the lowest prices in the current market.

The **Premium** (relative to the Exchange Value) for US-origin concentrates declined $0.20 to $0.50 during February. The market for US-origin concentrates was almost totally inactive, and no transactions are reported. At the beginning of the month, producers were unwilling to offer below the $17.00 per pound level for US origin, and potential buyers, who saw a general softening of the market and a reduction in the risk of import restrictions, were unwilling to pay the prices demanded by the producers. Although some producers later began lowering prices, even those lower price levels could not stimulate significant buyer interest.

Currently there is little demand for this material — only one US utility has specified domestic-origin, for a small quantity. US utilities still are waiting for the results of the US Producer vs. DOE lawsuit and the US-Canada Free Trade Agreement before committing to further major purchases. Most US utilities are preserving their inventories of US-origin and feeding non-US-origin material for enrichment, so as to allow maximum flexibility in the event that restrictions on use or import of non-US-origin uranium are imposed. While there was no buying activity in February in the market for US-origin material, it is likely that the reduced prices for this material could stimulate some demand in the near future.

The timetable for resolution of the US Producers vs. DOE lawsuit remains in doubt, although its position on the spring Supreme Court calendar could be finalized in early March. As of press time, no schedule had been released indicating the dates for oral arguments. If the case is placed on the calendar for hearing in April or May, it is likely that a ruling will be made by June 1988. However, if the case is postponed until the fall session, no decision should be expected before early 1989.

The status of the US-Canada Free Trade Agreement (FTA) also remains uncertain. While the Canadian Parliament's support for implementation is relatively strong, the passage of implementing legislation in the USA is questionable. The Reagan administration continues to support the Agreement, but the presence of the omnibus Trade Bill, budget concerns, and other situations have

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diverted attention away from the FTA. The Reagan Administration has reached agreement with the US House of Representatives on timely *procedural* consideration (that is, a timely vote), but this does not guarantee that the House will vote in favor of the FTA. Because of the nature of procedural rules in the US Senate, it is not possible to assure the same timely treatment by the Senate. It appears that the longer the FTA sits before Congress without ratification, the less likely are the prospects for its implementation. It now seems likely that if the FTA is implemented at all, it will be in late 1988 (after the November elections) or early 1989.

The **UF_6 Value** declined $0.50 to $46.00 per kgU as UF_6 during February. Three UF_6 transactions are reported, totaling less than 400,000 pounds equivalent U_3O_8 of non-US-origin material. At the end of February, two US utilities were in the market for substantial quantities of UF_6, one of which was seeking enriched uranium, although neither had specified US-origin. In addition, two entities in the Far East had expressed interest in purchasing enriched UF_6. Active supply of UF_6 remains relatively weak, compared to the market for concentrates.

The **Premium** (relative to the UF_6 Value) for US-origin UF_6 is unchanged at $1.25 per kg U as UF_6. Relatively little US-origin UF_6 is available for sale, but demand also is weak, and no transactions are reported. The low levels of US-origin UF_6 available in the spot market have contributed to greater price volatility, with prices varying depending on the size of demand. While small quantities of material might be available at prices below the UF_6 Value, larger lots are likely to strain the available supply and could lead to somewhat higher prices.

* * *

The **Loan Rate** is unchanged this month at 3.5 percent per annum. The supply of material available for loans remains large, but little or no firm demand exists at the present time. One short-term loan transaction, involving less than 300,000 pounds of natural uranium concentrates, is reported this month.

* * *

The **Conversion Value** declined this month to $1.80 per pound U as UF_6, as recent sales are indicating a softening of this market. Two European utilities and one US utility currently are evaluating offers for secondary market conversion, but this demand is largely discretionary. One secondary market transaction involving conversion is reported, at a cash price below this month's Conversion Value, but other factors in the transaction would cause the evaluated price to be close to the Conversion Value; it is notable in that extended payment terms and other conditions are now appearing in secondary market conversion transactions. Prices for conversion in Europe remain significantly higher than in the USA.

ENRICHED URANIUM AND SWU

The **SWU Value** is $73 per SWU, unchanged since last month, and no SWU transactions are reported. A wide range of SWU prices can be found, based on quantity, origin, location, and various risk factors. Three utilities currently are in the market for SWU. One US customer is expected to buy a significant quantity within the next two months, while two others in the Far East are interested in small quantities. For demand involving larger quantities, competition among sellers is likely to add downward pressure to prices; however, for small quantities of SWU, somewhat higher prices are likely, a situation quite the opposite of the markets for concentrates and UF_6.

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CURRENT MARKET DATA

EXCHANGE VALUE EXPRESSED IN SELECTED PRODUCER & CONSUMER CURRENCIES[1]

Country (currency)	per lb. U_3O_8 as Concentrates			per kg U as Concentrates		
	This Month (Feb 29, 1988)	Last Month (Jan 31, 1988)	12 Months Ago (Feb 28, 1987)	This Month (Feb 29, 1988)	Last Month (Jan 31, 1988)	12 Months Ago (Feb 28, 1987)
Australia (dollar)	22.45	22.83	24.83	58.35	59.35	64.54
Belgium (comm. franc)	570.07	567.55	632.08	1,482	1,476	1,643
Canada (dollar)	20.40	20.81	22.32	53.03	54.09	58.01
EEC (ecu)	13.20	13.16	14.79	34.33	34.22	38.46
Finland (markka)	65.95	66.07	75.86	171.44	171.77	197.22
France (franc)	92.29	91.52	101.70	239.92	237.94	264.40
FRG (mark)	27.26	27.17	30.55	70.87	70.63	79.43
Italy (lira)	20,092	19,983	21,691	52,235	51,951	56,392
Japan (yen)	2,073	2,070	2,564	5,389	5,382	6,666
Netherlands (guilder)	30.60	30.50	34.52	79.56	79.28	89.75
South Africa (rand)	33.51	32.21	34.54	87.11	83.75	89.79
Spain (peseta)	1,841	1,843	2,145	4,786	4,790	5,576
Sweden (krona)	96.65	97.78	107.93	251.26	254.21	280.58
Switzerland (franc)	22.42	22.10	25.73	58.30	57.44	66.89
UK (pound)	9.11	9.15	10.87	23.68	23.78	28.25
US (dollar)	16.15	16.30	16.75	41.99	42.38	43.55

TRANSACTION VALUE EXPRESSED IN SELECTED PRODUCER & CONSUMER CURRENCIES[1]

Country (currency)	per lb. U_3O_8 as Concentrates			per kg U as Concentrates		
	This Month (Feb 29, 1988)	Last Month (Jan 31, 1988)	12 Months Ago (Feb 28, 1987)	This Month (Feb 29, 1988)	Last Month (Jan 31, 1988)	12 Months Ago (Feb 28, 1987)
Australia (dollar)	23.14	23.60	25.05	60.16	61.35	65.12
Belgium (comm. franc)	587.72	586.70	637.74	1,528	1,525	1,658
Canada (dollar)	21.03	21.51	22.52	54.67	55.92	58.53
EEC (ecu)	13.61	13.61	14.93	35.39	35.38	38.80
Finland (markka)	67.99	68.30	76.54	176.75	177.57	198.99
France (franc)	95.14	94.61	102.61	247.35	245.96	266.77
FRG (mark)	28.11	28.08	30.83	73.07	73.01	80.15
Italy (lira)	20,714	20,657	21,886	53,852	53,704	56,897
Japan (yen)	2,137	2,140	2,587	5,556	5,56	6,725
Netherlands (guilder)	31.55	31.52	34.83	82.03	81.96	90.55
South Africa (rand)	34.54	33.30	34.85	89.81	86.57	90.59
Spain (peseta)	1,898	1,905	2,164	4,935	4,952	5,626
Sweden (krona)	99.64	101.08	108.89	259.04	262.78	283.09
Switzerland (franc)	23.12	22.84	25.96	60.10	59.38	67.49
UK (pound)	9.39	9.45	10.96	24.41	24.58	28.50
US (dollar)	16.65	16.85	16.90	43.29	43.81	43.94

[1]Calculated using currency exchange rates published in the *Wall Street Journal* on the last working day of the month.

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CONVERSION VALUE EXPRESSED IN SELECTED PRODUCER & CONSUMER CURRENCIES[1]

Country (currency)	per lb U as UF_6			per kg U as UF_6		
	This Month (Feb 29, 1988)	Last Month (Jan 31, 1988)	12 Months Ago (Feb 28, 1987)	This Month (Feb 29, 1988)	Last Month (Jan 31, 1988)	12 Months Ago (Feb 28, 1987)
Australia (dollar)	2.50	2.66	2.67	5.52	5.87	5.88
Belgium (comm franc)	63.54	66.16	67.92	140.07	145.85	149.75
Canada (dollar)	2.27	2.43	2.40	5.01	5.35	5.29
EEC (ecu)	1.47	1.53	1.59	3.24	3.38	3.50
Finland (markka)	7.35	7.70	8.15	16.20	16.98	17.97
France (franc)	10.29	10.67	10.93	22.68	23.52	24.09
FRG (mark)	3.04	3.17	3.28	6.70	6.98	7.24
Italy (lira)	2,239	2,329	2,331	4,937	5,135	5,139
Japan (yen)	231.04	241.30	275.52	509.35	531.98	607.43
Netherlands (guilder)	3.41	3.55	3.71	7.52	7.84	8.18
South Africa (rand)	3.73	3.75	3.71	8.23	8.28	8.18
Spain (peseta)	205.20	214.79	230.50	452.38	473.52	508.17
Sweden (krona)	10.77	11.40	11.60	23.75	25.13	25.57
Switzerland (franc)	2.50	2.58	2.76	5.51	5.68	6.10
UK (pound)	1.02	1.07	1.17	2.24	2.35	2.57
US (dollar)	1.80	1.90	1.80	3.97	4.19	3.97

SWU VALUE AND UF_6 VALUE EXPRESSED IN SELECTED PRODUCER & CONSUMER CURRENCIES[1]

Country (currency)	SWU Value at 0.30% tails assay (Feb 29, 1988)	UF_6 Value per kg U as UF_6 This Month (Feb 29, 1988)	UF_6 Value per kg U as UF_6 Last Month (Jan 31, 1988)
Australia (dollar)	101.46	63.93	65.12
Belgium (comm. franc)	2,577	1,624	1,619
Canada (dollar)	92.19	58.09	59.35
EEC (ecu)	59.69	37.61	37.55
Finland (markka)	298.08	187.83	188.48
France (franc)	417.14	262.85	261.08
FRG (mark)	123.23	77.65	77.50
Italy (lira)	90,819	57,228	57,006
Japan (yen)	9,370	5,904	5,906
Netherlands (guilder)	138.34	87.17	86.99
South Africa (rand)	151.45	95.43	91.89
Spain (peseta)	8,322	5,244	5,257
Sweden (krona)	436.86	275.28	278.94
Switzerland (franc)	101.36	63.87	63.03
UK (pound)	41.17	25.94	26.09
US (dollar)	73.00	46.00	46.50

[1]Calculated using currency exchange rates published in the *Wall Street Journal* on the last working day of the month.

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CURRENT MARKET DATA

RECENT TRANSACTIONS[1]

Uranium Sales

Nuexco Transaction Number	Delivery Period	Approximate Quantity (thousands of pounds, U_3O_8 equivalent)	Approximate Price Range as Percent of Current Exchange or UF_6 Value[2]	Seller	Buyer	Remarks
4258	1988	50-100	98-102	Intermediary	Utility	
4259	1988	101-300	98-102	Producer	Utility	UF_6
4263	1988	101-300	98-102	Intermediary	Intermediary	UF_6
4264	1988	50-100	98-102	Intermediary	Utility	UF_6

Loan Transactions

Nuexco Transaction Number	Delivery Period	Approximate Quantity (thousands of pounds, U_3O_8 equivalent)	Approximate Price Range as Percent of Current Loan Rate	Lender	Borrower	Remarks
4262	1988	101-300	R[3]	R[3]	Intermediary	

Conversion Services Secondary Market Sales

Nuexco Transaction Number	Delivery Period	Approximate Quantity (thousands of pounds, U equivalent)	Approximate Price Range as Percent of Current C.V.	Seller	Buyer	Remarks
4265	1988	101-300	82-87	Intermediary	Utility	

[1] Transactions listed are not limited to those in which Nuexco was involved, but also include others of which Nuexco is aware.
[2] Where US-origin material is involved, the range is based on the Exchange Value (or UF_6 Value) *plus* the premium (relative to the Exchange Value or UF_6 Value). The range reflects five percentage points (inclusive) per grouping, centered about the middle of the range.
[3] The notation R means that Nuexco either does not know, or that Nuexco has restricted that information to protect client or source confidentiality.

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URANIUM SUPPLY
(February 29, 1988)

Nuexco Project Number	Delivery Period[1] (Thousands of Pounds U_3O_8) Spot or Near-term[2]	Intermediate or Long-term	Remarks
Available for Sale:			
ACTIVE			
87-1002	270	—	
87-1005	200	400 per year	1988-95
87-1023*	800	500 per year	1988-90
87-1061	200	200 per year	U_3O_8 or UF_6, 1988 on
87-1123	400	—	
87-1130*	500	—	
87-1141	500	200 per year	1989-92
87-1152	200	—	
87-1156	825	—	
87-1159*	60	—	
87-1161	1,000	1,000 per year	
88-1000*	260	—	U_3O_8 or UF_6
88-1001	200	—	1988
88-1026	300	—	1988
88-1033A*	50	—	1988, UF_6
88-1036*	100	—	1988
88-1041*	775	—	UF_6
87-1001	—	400 per year	1989 on
TOTAL:	6,640		
INACTIVE			
87-1017	1,000	—	
87-1053	100	400 per year	1989 on
87-1135	500	—	UF_6
87-1019	—	600 per year	1988-91
TOTAL:	1,600		

*New or revised since last month.
[1]Measured from the date of this Report.
[2]For delivery within one year. This category excludes material deliverable within one year under other than spot or near-term contracts.
Projects removed since last month: None.

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CURRENT MARKET DATA

URANIUM DEMAND
(February 29, 1988)

Nuexco Project Number	Delivery Period[1] (Thousands of Pounds U_3O_8) Spot or Near-term[2]	Intermediate or Long-term	Remarks
Inquiries to Purchase:			
ACTIVE			
87-1040*	700	300	1989, UF_6
87-1121	650	650 per year	1988-96
87-1146*	25	—	
88-1013A*	150	—	1988, UF_6e
88-1017A*	750	—	1988, UF_6e
88-1024*	50	—	1988
88-1035A*	40	—	1988, UF_6e
88-1015	135	—	1988
87-1013	—	1,200 per year	1990-95
87-1021	—	200 per year	1992 on
87-1108	—	200 per year	1991-2000
87-1134	—	260	1989
87-1172	—	500 per year	1990 on
88-1044*	—	2,400	1991-95
TOTAL:	2,500		
INACTIVE			
87-1154A*	80	—	1988, UF_6e
87-1163	160	—	1989-92
88-1014	190	—	1988
87-1166*	—	650	1989, UF_6
88-1022	—	225	1989, UF_6
TOTAL:	430		

*New or revised since last month.
[1]Measured from the date of this Report.
[2]For delivery within one year. This category excludes material deliverable within one year under other than spot or near-term contracts.
Projects removed since last month: 87-1040, 87-1114, 87-1122, 87-1125, 87-1150, 87-1158, 88-1011.

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LOAN SUPPLY AND DEMAND
(February 29, 1988)

Nuexco Project Number	Delivery Period[1] (Thousands of Pounds U_3O_8) Within 1 Year	Beyond 1 Year	Remarks
Available for Loan:			
ACTIVE			
87-1012	2,000	—	
87-1064	600	—	
87-1071	1,000	—	UF_6
87-1157	4,000	—	
87-1167	450	—	
TOTAL:	8,050		
INACTIVE			
87-1031	1,000	—	
87-1033	1,000	—	
TOTAL:	2,000		

*New or revised since last month.
[1]Measured from the date of this Report.
Projects removed since last month: 87-1119.

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CURRENT MARKET DATA

CONVERSION SUPPLY AND DEMAND
(February 29, 1988)

Nuexco Project Number	Delivery Period[1] (Thousands of Pounds U as UF_6) Within 3 Years	Beyond 3 Years	Remarks
Available for Sale:			
ACTIVE			
88-1004	150	—	
TOTAL:	150	750	
INACTIVE			
87-1008	750	750	
TOTAL:	750		
Inquiries to Purchase:			
ACTIVE			
88-1020	100	—	
88-1021	65	—	
88-1034*	750	—	
TOTAL:	915		

*New or revised since last month.
[1]Measured from the date of this Report.
Projects removed since last month: 87-1000C.

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SWU SUPPLY AND DEMAND
(February 29, 1988)

Nuexco Project Number	Delivery Period[1] (Thousands of SWU) Spot or Near-term[2]	Intermediate or Long-term	Remarks
Available for Sale:			
ACTIVE			
87-1058	90	—	1988
87-1068	100	—	1988
88-1033B*	15	—	1988
TOTAL:	205		
INACTIVE			
87-1004	55	—	1988
87-1128	300	—	1988
TOTAL:	355		
Inquiries to Purchase:			
ACTIVE			
88-1017B	160	—	1988, UF_6e
88-1013B*	40	—	1988,UF_6e
88-1035B*	20	—	1988, UF_6e
TOTAL:	220		
INACTIVE			
87-1065	150	—	1988
87-1154B*	20	—	1988, UF_6e
87-1171	130	—	1988
TOTAL:	300		

*New or revised since last month.
[1]Measured from the date of this Report.
[2] For delivery within one year. This category excludes SWU deliverable within one year under other than spot or near-term contracts.
Projects removed since last month: 87-1162.

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BASIC CONSIDERATIONS

COMMERCIAL CONSIDERATIONS IN URANIUM TRANSACTIONS — PART 1

Introduction

In the nuclear fuel cycle, uranium appears in a variety of forms including: ore, natural uranium concentrates, natural UF_6, enriched and depleted UF_6, enriched UO_2 powder, pellets, fabricated fuel, and spent fuel. Less common forms include UF_4 (green salt), natural UO_2, and uranium metal. Most uranium commerce, however, involves one or more of the following forms — natural uranium concentrates (referred to herein as "concentrates"), natural UF_6, and enriched UF_6.

While uranium is normally considered fungible, uranium commerce is often circumscribed by such factors as:

1. Milling arrangements;
2. converters' policies and capabilities;
3. storage arrangements;
4. origin restrictions; and,
5. ownership, possession and location considerations.

This article reviews these factors and the resulting commercial implications associated with natural uranium concentrates. Future articles will cover natural UF_6 and enriched UF_6.

Natural Uranium Concentrates (U_3O_8)

Uranium is recovered from uranium ores extracted from underground and open pit mines and from uranium-bearing solutions, including in-situ, mine-water or by-product operations. The ores are processed in mills, resulting in a variety of concentrate forms* These are commonly measured in U_3O_8 equivalents. While uranium production operations normally produce concentrates for immediate delivery to customers to fulfill contractual commitments, some operations produce at rates in excess of near-term delivery commitments. The usual reasons for such excess production include:

1. Obtaining the economic benefits of levelized or higher production rates;
2. having extra material available for sale on the spot market;
3. processing pre-production or pilot plant ores from mine development activities, and;
4. processing ore stockpiles in batches and cleaning up in connection with temporary or permanent shutdown of production.

Other, less common reasons could include the desire to earn a return on a sunken investment and to postpone the required reclamation (by continuing operations to maintain current licenses).

As a rule, almost all uranium is produced as a dry, powdery concentrate, ranging in color from bright yellow (hence the term "yellowcake") to greenish-black, and is shipped in 55 gallon drums. A drum holds about 1,000 pounds of concentrates, containing somewhere between 650 and 900 pounds of U_3O_8 equivalent (most often 750 to 800 pounds). The principal exception to this general rule is uranium that is delivered to conversion plants in slurry form (usually because the producer lacks a drying facility). A "commercial lot" of uranium is not a precise quantity, but, based on the typical capacity of one truck, the minimum lot size is about 40 drums, containing about 30,000 to 32,000 pounds of U_3O_8.

The concentrates located at a particular mill site may be owned by any of a number of different entities. In the simplest case, both the mine which produces the ore and the mill that processes it are owned by the same entity, and the concentrates produced by the mill are owned by that entity.

In the case of toll milling, the owner of the ore pays a fee (a tolling charge) to the mill for processing the ore into concentrates. The owner of the ore (the tolling customer), not the mill owner, is the owner of the resulting concentrates, subject to whatever other arrangements may exist with respect to the storage and transport of such material. It should be noted that in some cases the mill owner may collect the tolling charge in kind, as a percentage of the concentrates produced. In the case of custom milling, the mill owner buys the ore (from miners or other parties) for cash or other considerations, and owns the concentrates produced.

There are a number of variations on this theme, for some mills may provide both toll and custom milling services in addition to processing ore provided by the mill owner. In

* The natural uranium concentrates currently being produced are as likely to be in the form of $Na_2U_2O_7$ (sodium diuranate), $(NH_4)_2U_2O_7$ (ammonium diuranate), UO_2, or UO_3 as they are to be in the form of U_3O_8. That equivalent pounds of U_3O_8 are the accepted units of commerce and pricing is an accident of history, resulting from the fact that the earliest uranium mining involved ores and recovery processes that produced concentrates in that form. The term "concentrates" is used in this article, in lieu of the more precise phrase, "natural uranium concentrates."

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other cases the mill owner and the mill operator may be different entities, and it is possible that neither, both or only one actually mines uranium. Ownership of the concentrates produced at such mills, and the right to take or sell such concentrates, is governed by the specific contractual arrangements among the various parties. These arrangements naturally result in commingling of concentrates from different mines, but custom dictates that the mill output be attributed to individual mines in proportion to the equivalent amount of uranium content of the ore, as mill feed, which came from those mines. In any case, the product must reflect the characteristics of the feed, and the amount of uranium of any origin must not be increased or decreased.

In addition there are occasions when a utility or other buyer pays for and/or takes title to concentrates located at the mill site. Such arrangements take two forms. The first, which might be termed the "cordon-off" approach, involves identifying and physically segregating certain drums of concentrates as belonging to the buyer. Since the concentrates have not been weighed, sampled and assayed at a conversion facility, such an arrangement must include provisions relating to final settlement between buyer and seller if, upon eventual delivery to a converter, the quantity is found to be different from that purchased, or if surcharges are applicable or rejection occurs. The cordon-off approach prevents commingling and protects the owner from certain claims on material that has been subject to commingling.

The second approach involves an agreement under which the buyer has the right to a specified quantity of concentrates located at the mill, and the seller is obligated to deliver that quantity at some designated time and place. The obligation is general, as opposed to designating specific drums or lots. The usual delivery arrangements between a uranium seller and the buying customer call for physical delivery or book transfer at a conversion facility.

In a physical delivery the seller ships the concentrates to the sampling facility adjacent to the converter designated by the buyer. The buyer typically takes delivery on-board carrier at the sampling plant, with the buyer paying 90 to 100 percent of the total purchase price on delivery, based on the seller's provisional analysis of the amount of concentrates delivered. Final payment between buyer and seller occurs after assay settlement (the procedure to finalize the quantity of concentrates actually delivered). However, assay settlement can take as long as three months, and even longer if the converters are exceptionally busy or if there is a dispute about the assay that requires resolution by umpire procedures*.

In order to avoid the delays (including payment delays) associated with physical delivery and to accommodate customers, many sellers elect to deliver by book transfer. In this procedure the seller establishes a "supplier account" with the converter (sometimes also referred to as a "receiving" or "holding" account) to which the concentrates are delivered. Deliveries to such an account are scheduled so that, when the time comes for the seller to deliver to the buyer, there are already sufficient "final pounds" in the account (following the aforementioned assay settlement procedure) to deliver the exact quantity. The delivery is accomplished by having the converter transfer, on its books, the specified quantity from the seller's account to the buyer's account. This simple accounting transaction is essentially the same as transferring funds at a bank. Book transfers involve commingling, and custom dictates that the resulting product be assigned the mine origins of the mill feed material unless the converter is directed to make a different assignment in its internal records. Again, the feed must match the product characteristics and the quantity must not be changed.

A variation of physical delivery involves the seller shipping material to its account at the converter and specifying that, following the determination of the final pounds of U_3O_8 equivalent contained in the material, all such final pounds, whatever the quantity, be transferred to a particular buyer's account.

There is also another significant variation in the procedures outlined above. Under certain circumstances converters will provide a seller with final pounds (based on the seller's provisional weights and assays, or perhaps 98 or 99 percent thereof), ready for book transfer, at the time of physical delivery of concentrates to the sampling plant. This procedure is generally available only when the seller in question has an established record of delivery, the converter is familiar with the quality of the seller's concentrates, and there is a sufficient balance in the seller's account to cover possible variances. Converters are generally willing to accommodate their customer's wishes in this regard, particularly when time-sensitive commercial matters are involved.

* Umpire procedures are those used to resolve any differences between the provisional assay of the concentrates provided by the producer and the converter's assay of the same concentrates. The umpire procedure involves an independent organization performing an assay on concentrates samples that were taken at the same time as were the converter's samples.

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BASIC CONSIDERATIONS

Most deliveries at converters are made to utilities that have conversion accounts with that converter. Such accounts are established under the terms of a conversion contract between the utility and the converter. It is, of course, possible that the buyer is not a utility and not a conversion customer, in which case delivery may be made to a supplier account rather than to a conversion account. However, it is also possible that the non-utility entity may have established a conversion account with that converter, if it has an obligation to deliver UF_6 to a customer.

Finally, concentrates may be stored at commercial storage facilities or other licensed locations which may have no association with either uranium mining or conversion operations. Such arrangements are usually made when the owner of the concentrates:

1. Wishes to resell the uranium and, to retain maximum fungibility, wants to avoid committing it to a specific converter;
2. has yet to conclude a conversion contract;
3. has no near-term use for the concentrates, or;
4. is attracted by the lower storage charges at such facilities.

Factors Affecting Fungibility

Converters' Non-Removal Policies — With few exceptions, concentrates, once delivered to a converter, weighed, sampled and with the U_3O_8 equivalents credited to a customer's account, may not be removed from that particular facility, and *must* eventually be delivered as UF_6 to an end user (conversion customer) who has a conversion agreement with that converter. There are practical, operational reasons for such a non-removal policy, principally relating to the standard converter policy of protecting his right to convert the material, and the disruption in the flow of material caused by selecting, sampling and packaging material for withdrawal.

While any removal of concentrates from a converter would be unusual, it could conceivably occur as the result of a decision to terminate the contractual relationship between the converter and the owner of the concentrates, or in connection with litigation or other extraordinary circumstances. Since potential buyers are generally limited to those associated with that particular converter, concentrates located at a specific conversion facility are less fungible than concentrates that can be delivered anywhere. This disadvantage is, at least partially, offset by the fact that material stored at a converter can be delivered instantly by book transfer.

The difficulties (and costs) associated with removing concentrates from a particular conversion facility can generally be overcome through exchanges with other uranium market participants, and such exchanges are a common form of commercial activity.

Fees at Converters — Converters have, at times, charged fees for certain transfers within their facilities. The conventional form of transfer within a conversion facility is from a supplier account to a utility's conversion account. However, in the market environment of the past several years, other types of transfers also have become commonplace, including: from one supplier account to another supplier account, from one conversion account to another conversion account, and from a conversion account to a supplier account. The imposition of even a modest fee could be sufficient to destroy the economics of a transaction with a small profit margin. Current competitive pressures have led to the elimination of such fees.

Specific Policies and Capabilities of Different Converters — Because the individual converters differ as regards policies, processes, and capabilities, inherent institutional and operational constraints also exist. Thus, uranium in the form of slurry is only accepted for processing into UF_6 by certain converters. Uranium with certain chemical attributes, such as high sodium and/or potassium content, may be subject to higher surcharges or exceed rejection limits at one converter and not another. Different converters also may have different requirements for the identical transactions, and one converter may permit a transaction that another will not.

Storage at Converters — Uranium suppliers' accounts at converters exist for the purpose of facilitating deliveries to conversion customers. Supplier accounts are not intended to provide producers with a warehousing service for long term storage of concentrates. The contractual arrangements between a converter and a uranium supplier typically set a limit on the quantity of concentrates that may be in the supplier account and the length of time they may be kept there. In the case of concentrates that will not be delivered or converted for some time, the converter may require the supplier to conclude a storage agreement which provides for the payment of storage charges. Storage charges at US converters currently amount to about $0.01 per pound U_3O_8 equivalent per month.

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Outside Storage Facilities — Concentrates which are stored at commercial storage facilities usually have been weighed, sampled and assayed at one of the sampling facilities associated with a converter before transfer to the storage site. While this procedure allows the buyer and seller to settle financially and may allow the buyer to save on storage costs and defer selection of a converter, there are other, potentially negative consequences. Among these are incurring the additional transportation costs of shipping the concentrates back to a converter and the costs of re-sampling. It should be noted that even if the concentrates are shipped to the same converter that did the original sampling, the converter is likely to insist on re-sampling since the material was not continuously under its control. This disadvantage could be offset by lower fees charged by the commercial storage facility if the concentrates are to be stored for an extended period.

Restrictions Based on Origin — The national origins of concentrates also influence commerce, almost always in the form of restrictions resulting from laws and national or local policy considerations. Thus, as a consequence of legislation passed by the US Congress in 1986 (the Comprehensive Anti-Apartheid Act of 1986), South African or Namibian ore or oxides may no longer be imported into the USA. Similarly, due to the lack of appropriate bilateral safeguards agreements, Taiwan is unable to purchase uranium from Canada or Australia, US-origin material cannot be exported to Brazil or Argentina, nor can Canadian material be exported to Argentina. Some utilities, though not forbidden by law, have nevertheless elected not to use uranium of certain origins. In addition, the mere prospect of legislated or court-mandated restrictions on foreign uranium has led many US utilities to rearrange uranium inventories so as to preserve stocks of US-origin uranium. While the existence of such restrictions, whether real or threatened, limits the free flow of commerce, they have led to the development of new types of market mechanisms, designed to mitigate the inconvenience and extra costs of additional transportation-related expenses that would be dictated by such restrictions.

Conclusion

Despite constraints that may, at times, result from considerations of location, origin, form, ownership, and/or possession, it has usually proved possible, through exchanges and book transfers, to maintain uranium fungibility and to reduce the unnecessary costs of withdrawals, shipments and alternative processing that may result from such restrictions. The act of commingling for process efficiency has been accepted by law, and custom has dictated practices that allow reasonable efficiency without contravention of established national and international regulations. The main obstacles likely to impede uranium commerce in the future will continue to be the various political restrictions that may be applied by government entities, whether to protect domestic industries, to advance national non-proliferation aims, or to apply economic sanctions.

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RAW MATERIALS

WORLD URANIUM PRODUCTION IN 1987

Introduction]

World uranium production, excluding communist countries (for which little reliable information is available), totaled approximately 94.9 million pounds U_3O_8 (about 43,000 metric tonnes U_3O_8) in 1987, a 2.5 percent drop from the 1986 figure of 97.3 million pounds (Table 1). Of the top four producing countries, Australia, South Africa and the USA registered decreases, while Canada, the foremost producer, increased output in 1987.

Australia

Australia's 1987 production totaled approximately 9.8 million pounds U_3O_8, a decrease of about one million pounds from the 1986 figure of 10.8 million pounds. Australia's share of the world uranium market also decreased slightly, from approximately 11.2 percent in 1986 to 10.3 percent in 1987. 1987 production came entirely from two producers, Energy Resources of Australia (ERA) and Queensland Mines Limited (QML).

Energy Resources of Australia — ERA's Ranger mine at Jabiru produced 6.8 million pounds U_3O_8, down from its 1986 level of 7.7 million pounds. ERA concluded new long-term contracts with two US utilities in 1987, bringing the total number of US contracts to eleven, and it is likely that two more such contracts will be announced in the first half of 1988. A new long-term contract with Electricite de France (EdF) also was signed, as part of Cogema's purchase (from Germany's Saarberg Interplan) of a 1.25 percent interest in ERA, the first such French equity participation in a producing Australian uranium project. ERA is also reported to have reached agreement with its shareholder-customers on a number of contract issues that have been in contention for some years. While the exact terms have not been made public, the settlement reportedly included lower prices, as well as additional tonnage, contract extensions, and the limitation of certain termination rights.

Queensland Mines — QML's Nabarlek project in the Northern Territory produced nearly 3.0 million pounds U_3O_8, all from ore stockpiled at the mill site. QML continued to deliver uranium to customers in Japan and in Europe, and a modest contract extension was concluded

Table 1

HISTORICAL WORLD[1] URANIUM PRODUCTION[2], 1983-87
(Millions of Pounds U_3O_8)

	Production/ Market Share[3] 1983	1984	1985	1986	Production/ Market Share[3] 1987	Percent Change from 1986
Australia	8.4 (8.8%)	11.4	8.5	10.8	**9.8** (10.3%)	- 9.3
Canada	18.6 (19.4%)	29.0	28.3	30.5	**32.3** (34.0%)	+ 5.9
France	8.5 (8.9%)	8.2	8.3	8.5	**8.6** (9.1%)	+ 1.2
Gabon	2.6 (2.7%)	2.4	2.4	2.2	**2.1** (2.2%)	- 4.5
Namibia	9.7 (10.1%)	9.6	9.0	9.1	**9.2** (9.7%)	+ 1.1
Niger	8.9 (9.3%)	8..6	8.2	8.2	**7.8** (8.2%)	- 4.9
South Africa	15.7 (16.4%)	14.9	12.6	12.0	**10.3** (10.9%)	- 14.2
United States	21.2 (22.1%)	14.9	11.3	13.9	**12.5** (13.2%)	- 10 1
Other[4]	2.2 (2.3%)	2.0	2.0	2.1	**2.3** (2.4%)	+ 9.5
WORLD TOTAL	95.8	101.0	90.6	97.3	**94.9**	- 2.5

[1]Outside Soviet bloc areas.
[2]Figures presented are Nuexco's best estimates.
[3]Expressed as a percentage of total production. Column total may not equal 100 percent due to independent rounding.
[4]Includes Argentina, Belgium, Brazil, India, Pakistan, Portugal, Spain, and Yugoslavia.

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with one customer. It is estimated that the ore stockpile now contains less than one million pounds of additional, recoverable U_3O_8, and that milling operations will be concluded by mid-1988. At that time, the company must either put the mill on a care-and-maintenance basis or begin the cleanup and decommissioning process. Although QML currently lacks sufficient, uncommitted production from Nabarlek to compete with other Australian sellers in the long-term market, negotiations with the Northern Land Council are progressing with respect to QML's gaining new exploration rights in the potentially uranium-rich areas surrounding Nabarlek.

Olympic Dam — Development of the mining and milling facilities and associated infrastructure at this large, multi-mineral operation continued during 1987, and startup of uranium production remains on schedule for mid-1988. The project's uranium output is currently targeted at 4.2 million pounds U_3O_8 annually, of which about 50 percent is under long-term contract at the present time. A 1986 contract with the Swedish State Power Board was followed in 1987 by contracts with the UK's Central Electricity Generating Board and Korea Electric Power Company, and a contract with a Japanese utility also is reportedly under negotiation.

Figure 1. Open-pit mine at Lodeve, France.

Canada

For the fourth year in a row, Canada led the world in uranium production in 1987, accounting for more than one-third of all U_3O_8 production worldwide. Canadian mining and milling centers produced 32.3 million pounds U_3O_8 in 1987, a six-percent increase from the 1986 level (Table 2).

The province of Saskatchewan was responsible for about two-thirds of this total output, as the Key Lake project again exceeded its 12-million pound rated capacity. Key Lake production totaled slightly more than 13.5 million pounds U_3O_8, an increase of almost one million pounds over the previous year's record output. The **Key Lake Joint Venture** is owned by the Saskatchewan Mining Development Corp. (SMDC, 50 percent), Uranerz Exploration and Mining (33.3 percent), and Eldorado Resources (16.7 percent). The milling of high-grade ore from the Collins "B" orebody increased output at **Eldorado's** newly-renovated Rabbit Lake mill to 5.7 million pounds, contributing to the overall production increase. At Cluff Lake, **Amok Ltd.** produced 2.15 million pounds U_3O_8, a slight decrease from the 1986 level.

Uranium production in Ontario declined in 1987, partly the result of a three-week strike in the Elliot Lake district. **Denison Mines Ltd.** and **Rio Algom** produced 4.7 million and 6.2 million pounds U_3O_8 respectively in 1987, a drop of approximately 10 percent and 15 percent respectively.

Both exploration and new project development continued in 1987, primarily in Saskatchewan and the Northern Territories. In October 1987, the Saskatchewan Environment Department gave its approval for test mining of the Cigar Lake deposit, the world's largest high-grade uranium deposit. The **Cigar Lake Mining Corporation**, owner of the project, plans to begin sinking a 500-meter exploratory test shaft in early 1988, as part of a two-year test period that will include site development, and a determination of technical feasibility for full-scale production. The test phase will involve mining up to 5,000 metric tons of ore. Commercial production is expected to begin in 1993.

Eldorado Resources also contined to conduct delineation drilling on its wholly-owned Eagle South deposit, as well as on the Eagle North deposit, which is owned by a joint venture of Eldorado, SMDC and Noranda. The two

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deposits together are estimated to contain over 130 million pounds U_3O_8, with average ore grades between one and two percent U_3O_8. The Saskatchewan Environment Division granted the necessary permits for the development of the Eagle Point and Collins "A" and "D" deposits in January 1988. **Denison Mines** completed purchase of a 60-percent interest in the Midwest Lake deposit, where it plans to conduct feasibility studies that could lead to shaft development as soon as 1988. **Minatco**, a subsidiary of France's Total Compagnie Miniere, has a permit for underground exploration at its McClean Lake property, but the company has not announced its plans for underground work at that site.

In its annual assessment of Canada's uranium resources, the Ministry of Energy, Mines and Resources significantly increased reserve estimates. As of the end of 1986, Canada's total known uranium resources (including measured, indicated and inferred categories) were estimated at 567,000 metric tons of uranium (MTU), or almost 1.5 billion pounds U_3O_8. Continuing delineation drilling of deposits in Saskatchewan accounted for most of the 16,000 MTU increase since the 1984 figure, the last time the full assessment was performed.

South Africa and Namibia

Uranium production in the Republic of South Africa continued to decline in 1987, to approximately 10.3 million pounds U_3O_8, a drop of 14.2 percent from the previous year's total of almost 12 million pounds (Table 3). These figures include production from both Chamber of Mines producers and the Palabora Mining Company. Part of the decline resulted from labor disruptions caused by the lengthy strike called by the Mineworkers Union, which caused third-quarter output to drop substantially at several mines, including **Freegold** (down 6 percent since 1986), **Randfontein** (down 23 percent), **Vaal Reefs** (down 13 percent) and **Western Areas** (down 23 percent). In addition, **Buffelsfontein** experienced a 25-percent drop in annual production due to lower ore recovery and insufficient ore

Table 2

CANADIAN URANIUM OUTPUT, 1986-1987

Company or Mine	Province	Production (Thousands of Pounds U_3O_8)		Percent Change[1]
		1986	1987	
Denison Mines Limited	Ontario	5,239	4,703	- 10.2
Rio Algom Limited	Ontario			
— Quirke		3,273	3,000	- 8.3
— Panel		2,303	2,000	- 13.2
— Stanleigh		1,737	1,200	- 30.9
Amok Ltd.	Saskatchewan	2,167	2,150	- 0.8
Eldorado Resources Ltd. (Rabbit Lake)	Saskatchewan	3,190	5,699	+ 78.7
Key Lake Joint Venture[2]	Saskatchewan	12,590	13,517	+ 7.4
TOTAL:		30,499	32,269	+ 5.8

[1]From previous year.
[2]SMDC 50%, UEM 33%, Eldorado 17%.

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Table 3

REPUBLIC OF SOUTH AFRICA
RECENT URANIUM PRODUCTION[1]
(Thousands of Pounds U_3O_8)

Operation	Total 1986	First Quarter 1987	Second Quarter 1987	Third Quarter 1987	Fourth Quarter 1987	Total 1987	Percent Change[2]
Buffelsfontein	1,316	271	245	240	229	985	- 25.2
Driefontein Consolidated	180	41	41	42	36	161	- 10.6
ERGO[3]	343	88	79	85	93	345	- 0.6
Freegold[4]	1,168	275	245	223	277	1,020	- 12.7
Harmony	728	102	103	97	90	393	- 46.0
Hartebeestfontein	1,025	242	231	223	219	916	- 10.6
Randfontein	1,324	314	297	148	259	1,019	- 23.0
Stilfontein (Chemwes)	638	228	234	232	239	933	+ 46.2
Vaal Reefs	4,255	1,025	977	768	927	3,697	- 13.1
Western Areas	585	127	104	124	98	452	- 22.7
Palabora Mining Co.	408	87	87	87	87	346	- 15.2
TOTAL[5]	11,970	2,801	2,642	2,270	2,553	10,266	- 14.2

[1]Includes both Chamber of Mines producers and the Palabora Mining Co., which does not belong to the Chamber of Mines.
[2]Change in percent from 1986 total.
[3]ERGO = East Rand Gold and Uranium Company Ltd.
[4]Formerly Free State Joint Metallurgical Scheme.
[5]Columns may not add due to rounding.

reserves in its Strathmore Shaft Area. Output from **Harmony** declined 46 percent from 1986, primarily due to the closure of its Virginia plant in mid-1986. The only significant increase came from **Stilfontein's** Chemwes facility, up 48 percent from the 1986 level. The increase came from additional sales and bringing forward deliveries that were due in 1990 and 1991; this enabled an increase in plant capacity utilization from 80 percent in 1986 to 100 percent in 1987. Production at **Palabora** was 346,000 pounds U_3O_8, a drop of 15 percent from the 1986 total of 408,000 pounds.

In Namibia, **Rossing Uranium Ltd.'s** Rossing project maintained steady production, estimated at 9.2 million pounds U_3O_8, a slight increase over 1986.

USA

US uranium production of approximately 12.5 million pounds U_3O_8 (Table 4) represented a decline of about 10

Table 4

DISTRIBUTION OF US PRODUCTION BY TYPE*
(Millions of Pounds U_3O_8)

	1982	1983	1984	1985	1986	1987
By-Product	3.2	3.1	3.1	3.6	3.6	3.7
Conventional	20.6	15.3	9.7	5.6	8.8	7.8
Solution Mining	3.0	2.8	2.1	2.1	1.5	1.0
Total	26.8	21.2	14.9	11.3	13.9	12.5

*Nuexco estimates.

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percent from 1986, when 13.8 million pounds were produced. Conventional production accounted for about 62 percent of the total, little changed from the previous year, while solution mining accounted for 8 percent (down from 11 percent) and by-product production from phosphates amounted to about 30 percent (up from 26 percent). Three key factors were largely responsible for the drop in US production:

1. In January 1987, Cotter Corporation suspended operations at its Schwartzwalder, Colorado underground mine and its Canon City, Colorado mill. 1986 production from the Schwartzwalder mine was 730,000 pounds U_3O_8.

2. USX Corporation's (formerly U. S. Steel) south Texas solution mining operations at Clay West changed over from production to restoration. Clay West had produced 550,000 pounds U_3O_8 in 1986.

3. The Umetco Minerals Corp./Energy Fuels Nuclear Inc. White Mesa mill at Blanding, Utah produced 4.5 million pounds U_3O_8, a decline of 400,000 pounds from the previous year.

Conventional Production

The Colorado Plateau and the Arizona Strip — The leading US uranium producer was **Energy Fuels Nuclear** and its Swiss partners, which produced approximately 3,800,000 pounds U_3O_8, largely from high-grade (over 0.30 percent U_3O_8) breccia-pipe ores found in northern Arizona. **Umetco Minerals Corp.**, a subsidiary of Union Carbide Corp., produced about 700,000 pounds U_3O_8 from mines on the Colorado/Utah border, and together with Energy Fuels, supplied the ore for the White Mesa mill, which is 70-percent owned by Umetco.

Rio Algom Corp. continued to operate its Lisbon, Utah mill, producing about 700,000 pounds U_3O_8 in 1987, using both company and outside-source ore. **Homestake Mining Co.** also produced about 400,000 pounds from its Section 23 mine in the Grants, New Mexico area.

The South Texas Region — **Chevron Resources Co.**'s Mt. Taylor mine, near Grants, New Mexico, continued in operation throughout 1987, producing approximately 1.5 million pounds U_3O_8. Production at Mt. Taylor involves mining about 600 tons per day of ore, with an average grade of 0.50 percent U_3O_8, then shipping the ore over 900 miles by rail to Chevron's Panna Maria mill. Recently, however, some Mt. Taylor ore has been milled at the Homestake mill near Grants.

About 80 miles south of Panna Maria, a joint venture of Chevron (60 percent) and **Total Minerals Corp.** (40 percent) started development of the Rhodes Ranch deposit, the first new open-pit uranium mine in the USA since the late 1970s. The mine is expected to produce about one million pounds U_3O_8 in 1988.

Colorado and Wyoming — **Cotter Corporation's** Schwartzwalder mine near Golden, Colorado suspended operation in January 1987. Ore from the mine had been shipped to the company's mill in Canon City, Colorado, which also has been placed on stand-by. In Wyoming, ore stockpiled from **Pathfinder Mines Corporation's** Shirley Basin and Gas Hills sites together was milled to produce over 500,000 pounds U_3O_8 in 1987. The mill at Gas Hills, which had been closed for more than two years, was refurbished and placed in operation in July 1987, even though the mines themselves remain closed.

Solution Mining

The overall share of US uranium produced from solution mining decreased 3 percent in 1987, as production dropped to under one million pounds U_3O_8 for the first time since 1975. Two major producing sites in Texas ceased production in 1987, and began restoration activities:

1. The Clay West project, jointly owned by USX Corp. (50 percent, operator) and **Niagara Mohawk Power Corp.** (50 percent), produced approximately 100,000 pounds U_3O_8 before changing over from production to restoration. The project's maximum output was 1.2 million pounds U_3O_8 in 1981.

2. **Everest Minerals'** Mt. Lucas project stopped producing uranium in 1987, after averaging about 500,000 pounds U_3O_8 per year since 1984. However, in December 1987, Everest started up the Tex-1 project, which, in conjunction with the nearby satellite Gruy project, expected to begin production in 1988, is expected to produce 500,000 pounds U_3O_8 annually.

In late 1987, **Malapai Resources Co.** bought the Holiday/El Mesquite and O'Hern properties in south Texas from Mobil Oil. Output during 1987 is estimated to be approximately 140,000 pounds U_3O_8. **Intercontinental Energy Corp.** produced about 100,000 pounds U_3O_8 at its Lamprecht facility. **Uranium Resources Inc.** has been preparing its Kingsville Dome and Rosita projects for 1988 production; once the projects are in full production, they are expected annually to produce 800,000 and 500,000 pounds U_3O_8, respectively. **Total Minerals Corp.** acquired the West Cole project from Tenneco Minerals in 1987, and has been reactivating the facility, which was placed on stand-by in 1984.

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In Wyoming, **Malapai Resources** acquired the Irigary property from Westinghouse, restarting the plant in late 1987. Malapai expects 1988 production to reach 250,000 pounds U_3O_8. **Everest Minerals** also expects to begin production in 1988 at its Highland, Wyoming property, at a rate of 800,000 pounds U_3O_8 per year. **Ferret Exploration Co.** submitted an application to begin production in 1989 from its Crow Butte, Nebraska project. Initial production is expected to be over 500,000 pounds U_3O_8 per year, with capabilities as high as perhaps one million pounds per year.

By-Product Production

Uranium produced as a by-product of phosphoric acid processing and other techniques totaled approximately 3.5 million pounds U_3O_8 in 1987, accounting for 30 percent of total US output. **International Minerals and Chemical Co.** and **Freeport Uranium Recovery Co.** produced about 1,900,000 and 1,200,000 pounds U_3O_8 respectively from their phosphate production operations in Louisiana and Florida. **Rhone Poulenc** also recovered approximately 30,000 pounds U_3O_8 from the processing of rare earth oxides at its Freeport, Texas plant. In the Grants, New Mexico district, **Homestake Mining Co.** and **Quivira Mining Co.** recovered a total of about 400,000 pounds U_3O_8 in 1987 from mine waters in conventional underground mines, most of which are no longer in operation. **Energy Fuels** recovered approximately 120,000 pounds U_3O_8 as a by-product of copper operations at Bingham Canyon, Utah.

Other Countries

Europe — Uranium production in Europe increased about 2 percent over 1986, led by France, whose 1987 output totaled 8.6 million pounds U_3O_8. Of this amount, Cogema accounted for 84 percent through its operations at Herault, Vendeed, Crouzille and Langogne. Total Compagnie Miniere-France produced the remainder at its Chebois unit in Haute-Vienne.

Spanish uranium production increased marginally, to 572,000 pounds U_3O_8 (Figure 2). Portuguese production

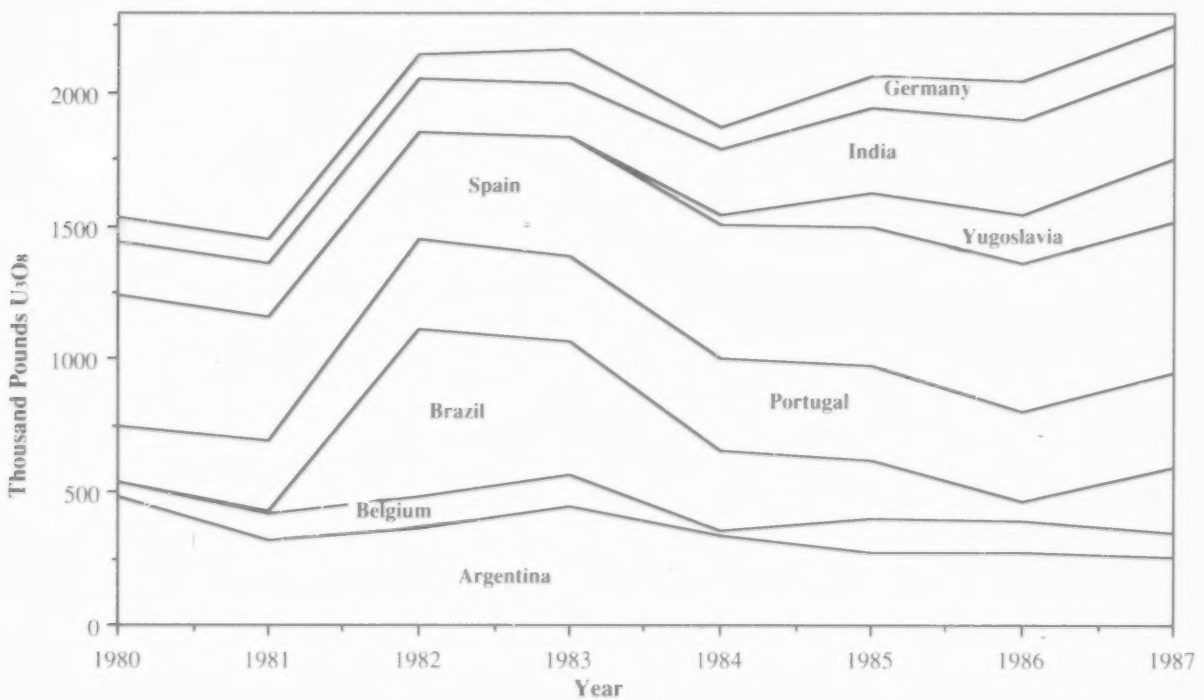

Figure 2

1987 URANIUM PRODUCTION IN SELECTED COUNTRIES

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remained steady at about 350,000 pounds U_3O_8 from Urgeirica. In Belgium, by-product uranium from phosphoric acid production declined to 91,000 pounds from the 1986 level of about 120,000 pounds U_3O_8.

In Germany, Saarberg-Interplan produced approximately 50,000 pounds U_3O_8 from its test mining program at the Grossschloppen project and Gewerkschaft Brunhilde continued production at Ellweiler at a rate of about 90,000 pounds U_3O_8 per year. The Zirovski project in Yugoslavia increased output 30 percent over 1986, to 234,000 pounds U_3O_8.

Central Africa — Compagnie des Mines d'uranium de Franceville (COMUF) produced 2.1 million pounds U_3O_8 at its Mounana operation in Gabon, down slightly from the 1986 total of 2.2 million pounds. Niger's 1987 output of 7.8 million pounds U_3O_8 from its Arlit and Cominak operations represent a 5-percent decrease from 1986, all of which is attributable to the Arlit mine, where production has declined from over 5 million pounds in 1982 to 2.6 million pounds U_3O_8 in 1987.

South America — In Brazil, Nuclebras increased production at its Pocas de Caldas complex from 77,000 pounds U_3O_8 in 1986 to 252,000 pounds in 1987. Production in Argentina decreased by 7 percent as the Malargue project was closed and the Los Gigantes project experienced continuing production difficulties. Total 1987 production was approximately 250,000 pounds U_3O_8.

Asia — India remained the largest uranium producer in Asia, outside of China, with 1987 production from both conventional and copper by-product operations estimated to be 360,000 pounds U_3O_8. China produces significant quantities of uranium, but information on Chinese production is highly classified by the government, and much of their production has been for military purposes. Japan produces a few thousand pounds U_3O_8 per year from various pilot programs. Pakistan is reported to have recently started up a uranium production complex at Dera Ghazi Khan, with an estimated capacity of about 60,000 pounds U_3O_8 per year.

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CANADA

On February 22, 1988, the Canadian and Saskatchewan governments announced that a letter of intent had been signed, calling for the merger of Eldorado Nuclear Limited (Eldorado) and the Saskatchewan Mining Development Corporation (SMDC). The merger, to form an as-yet unnamed new company, is targeted for completion by mid-1988, but until finalized, both companies will continue to carry on "business as usual." The merger announcement also noted the commitment to fully privatize the new organization within seven years. The new company would be headquartered in Saskatoon, Saskatchewan. Some of the details thus far released include:

1. *Schedule* — The proposed merger is to be put into effect by July 1, 1988. Before the final agreement can be signed, the Canadian federal government and the government of Saskatchewan must enact enabling legislation, and the merger will be examined for compliance with the Competition Act.

2. *Ownership structure* — The new company will initially be owned by the Saskatchewan government (61.5 percent) and the government of Canada (38.5 percent). This ownership distribution is reportedly based on evaluations of the two existing companies' assets and debts and on the potential future contributions of the companies. The founding shareholders in the new company also will receive a debt issue, estimated at about 40 percent of the net assets, in proportion to their share of the holdings.

3. *Privatization* — A divestiture schedule has been established, under which the two government shareholders together will reduce their holdings in the new venture to a total of 70 percent within two years, with further reductions to 40 percent within four years, and to zero percent within seven years.

4. *Controlling Interest and Foreign Participation* — No single Canadian shareholder (or related group) may hold shares totaling more than 25 percent of voting rights. Single non-Canadian shareholders (or related groups) will be limited to holdings carrying no more than 5 percent of the voting rights. In total, non-Canadian interests will be prohibited from exercising more than 20 percent of the voting rights.

The new company's holdings will include:

1. *The Key Lake Complex* — 66.7 percent of the Key Lake project, including the mill and associated deposits, estimated to continue producing some 12 to 14 million pounds U_3O_8 annually through at least the end of the century;

2. *The Rabbit Lake Complex* — 100 percent of the Rabbit Lake operation, which, supported by the nearby high-grade Collins Bay and Eagle Point deposits, is projected to produce 5 to 7 million pounds U_3O_8 annually, well into the next century;

3. *Cluff Lake* — 20 percent of Cluff Lake, expected to produce over two million pounds U_3O_8 per year into the next century;

4. *Cigar Lake* — 48.75 percent of the Cigar Lake project, with estimated reserves totaling 385 million pounds U_3O_8 at grades of 5 to 14 percent U_3O_8;

5. *Dawn Lake* — 50 percent of Dawn Lake, with estimated reserves of 30 million pounds U_3O_8 at a grade of approximately 2 percent U_3O_8.

6. *Refining and Conversion Facilities* at Blind River, and Port Hope, Ontario, currently operated by Eldorado.

Assuming that the merger is completed as planned, the resulting new entity would be the world's largest and lowest cost uranium producer. Based on 1987 production results, the two companies' combined production was more than 15 million pounds U_3O_8, representing 16 percent of WOCA production last year. Including only the major deposits associated with the existing Rabbit Lake and Key Lake operations, as well as Cigar Lake and Cluff Lake, the new company would control high-grade reserves currently (and conservatively) estimated to contain over 500 million pounds U_3O_8. In addition, it would hold Eldorado's modern conversion and UO_2 production facilities in Ontario.

The new company's sheer size, existing production operations, extensive high-grade reserves and experienced staff will make it the largest single force in the world uranium market. Some buyers already have expressed concern that the elimination of competition between Canada's two largest and most aggressive sellers could lead, in the near-term, to higher prices in both the spot and longer-term markets. Others believe that such concerns are exaggerated and premature, pointing out that the likelihood of a new round of inventory liquidations in the already soft spot market, and the apparent emergence of newly-aggressive Australian sellers seeking a share of the long-term market, will provide effective price discipline.

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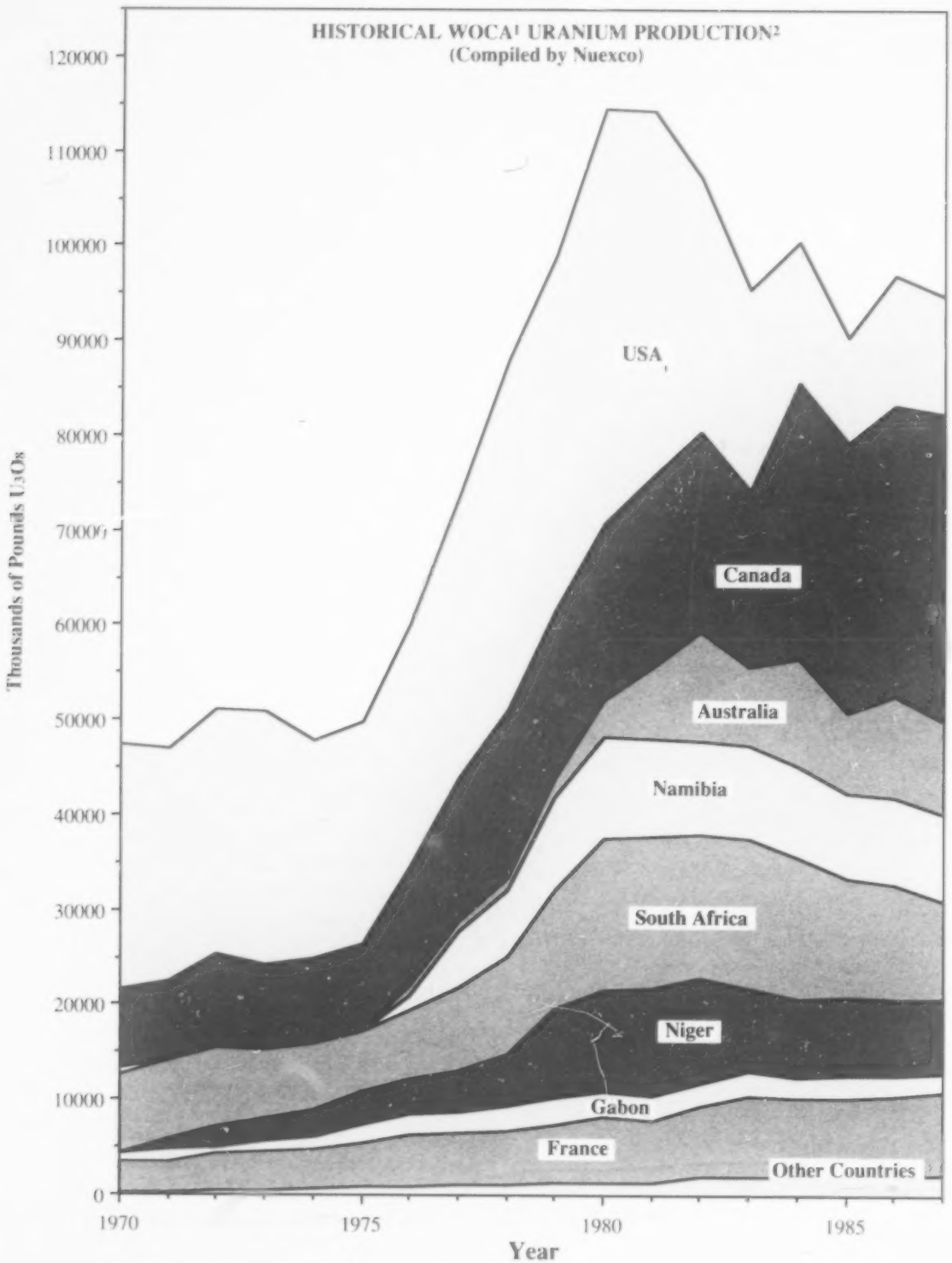
HISTORICAL MARKET DATA



[1] WOCA = World Outside of Centrally-Planned Economic Areas.
[2] 1987 production data are preliminary.

HISTORICAL EXCHANGE VALUES

Determined as of the last day of the month indicated ($US/lb. U_3O_8)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1968	—	—	—	—	—	—	—	6.35	6.35	6.40	6.45	6.50
1969		6.35	6.10	6.10	6.25	6.25	6.20	6.20	6.15	6.15	6.15	6.20
1970	6.30	6.30	6.30	6.30	6.30	6.30	6.30	6.20	6.15	6.15	6.15	6.15
1971	6.20	6.20	6.20	6.20	6.15	6.05	6.00	5.95	5.95	5.95	5.95	5.95
1972	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95
1973	5.95	6.00	6.10	6.20	6.45	6.50	6.50	6.50	6.50	6.50	6.75	7.00
1974	7.70	7.90	8.00	9.00	9.50	10.50	11.50	12.00	12.50	14.00	14.75	15.00
1975	16.00	16.00	18.00	20.00	21.00	23.00	24.70	26.00	26.00	28.50	30.00	35.00
1976	35.20	37.00	39.25	40.00	40.00	40.00	40.00	40.40	41.00	41.00	41.50	41.00
1977	41.35	41.50	41.60	41.60	42.00	42.25	42.25	42.25	42.40	42.75	43.20	43.20
1978	42.90	43.25	43.25	43.25	43.40	43.40	43.40	43.10	43.25	43.00	43.25	43.25
1979	43.25	43.25	43.25	43.25	43.25	43.00	42.70	42.70	42.20	42.20	41.00	40.75
1980	40.00	38.00	35.00	32.00	32.00	31.50	31.50	30.00	28.50	28.00	28.00	27.00
1981	25.00	25.00	25.00	25.00	25.00	24.25	23.50	23.50	23.50	23.50	23.50	23.50
1982	23.00	23.00	22.50	20.75	20.50	19.25	18.25	17.00	17.00	17.50	19.75	20.25
1983	21.50	21.75	22.25	23.25	23.50	23.50	24.00	24.00	24.00	23.50	22.50	22.00
1984	20.50	17.50	17.00	17.75	17.75	17.50	17.50	17.50	17.50	16.00	15.50	15.25
1985	15.00	15.00	15.00	14.25	15.00	15.00	15.75	16.00	16.00	16.50	16.75	17.00
1986	17.00	17.00	17.25	17.25	17.00	17.00	17.00	17.00	17.00	17.00	16.75	16.75
1987	16.65	16.75	17.00	17.00	17.00	16.90	16.75	16.65	16.65	16.75	16.65	
1988	16.30	**16.15**										

HISTORICAL US PREMIUM (Relative to the Exchange Value)

Determined as of the last day of the month indicated ($US/lb. U_3O_8)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1986	—	—	—	—	—	—	—	—	—	—	0.65	0.75
1987	0.85	1.00	1.50	1.50	0.90	0.60	2.50	2.35	2.10	1.65	0.85	0.65
1988	0.70	**0.50**										

HISTORICAL TRANSACTION VALUES

Determined as of the last day of the month indicated ($US/lb. U_3O_8)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1976	—	—	—	—	39.60	39.70	39.70	40.40	40.30	40.60	40.70	40.70
1977	41.30	41.30	41.40	41.50	42.80	42.90	43.00	42.60	42.50	42.80	42.90	42.90
1978	43.10	43.30	43.70	43.60	43.60	43.20	43.30	43.40	43.40	43.60	43.40	43.70
1979	43.60	43.80	43.70	43.40	43.60	43.70	43.70	43.60	43.60	43.60	43.50	42.30
1980	42.00	39.30	38.60	38.40	37.90	37.60	37.30	31.30	30.60	29.00	28.70	27.70
1981	27.20	27.20	27.00	25.70	25.70	24.50	24.40	24.30	23.90	24.10	24.10	24.00
1982	24.00	23.70	23.40	22.60	22.70	21.50	20.30	19.10	17.30	17.00	17.55	18.80
1983	19.35	20.00	21.35	21.40	22.35	22.45	23.50	23.60	23.65	23.65	23.85	23.85
1984	23.05	22.50	19.25	17.90	17.00	16.50	16.60	16.40	16.55	16.05	15.90	15.90
1985	16.20	15.70	15.05	14.90	14.45	14.60	14.75	15.10	15.10	15.75	15.80	16.55
1986	16.55	16.70	16.70	17.10	17.05	17.20	17.50	17.45	17.35	17.25	17.30	17.35
1987	17.35	16.90	16.95	17.00	17.20	17.10	17.30	17.55	18.20	18.05	17.80	17.20
1988	16.85	**16.65**										

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HISTORICAL MARKET DATA

HISTORICAL CONVERSION VALUES

Determined as of the last day of the month indicated ($US/lb. U as UF_6)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1981	1.20	1.20	1.20	1.40	1.15	1.15	1.15	1.10	1.10	1.10	1.20	1.20
1982	1.20	1.20	1.20	1.20	1.00	1.00	1.00	0.90	1.10	1.60	1.45	1.45
1983	1.20	1.40	1.40	1.20	1.20	1.20	1.10	1.10	1.00	0.60	0.60	0.60
1984	0.60	0.30	0.80	0.80	0.80	0.00	0.00	0.80	1.00	1.00	0.80	0.80
1985	1.00	1.00	1.00	1.50	1.50	1.60	1.60	1.60	1.60	1.60	1.60	1.60
1986	1.60	1.80	1.90	1.80	1.80	1.80	1.80	1.90	1.90	1.90	1.80	1.80
1987	1.80	1.80	1.80	1.80	1.80	1.80	1.90	1.90	1.90	1.90	1.90	1.90
1988	1.90	**1.80**										

HISTORICAL UF_6 VALUES

Determined as of the last day of the month indicated ($US/kg. U as UF_6)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1985	—	—	—	40.50	42.50	42.50	44.00	44.50	44.50	46.00	46.00	47.00
1986	47.00	48.00	48.00	48.50	48.25	48.25	48.25	48.00	48.00	48.00	48.00	47.75
1987	47.75	48.00	48.00	48.00	47.75	47.75	47.50	47.00	46.75	47.00	47.00	47.00
1988	46.50	**46.00**										

HISTORICAL US UF_6 PREMIUM (Relative to the UF_6 Value)

Determined as of the last day of the month indicated ($US/kg U as UF_6)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1986	—	—	—	—	—	—	—	—	—	—	2.50	2.50
1987	2.50	2.50	3.50	3.00	2.25	1.75	6.50	6.00	4.25	3.10	2.25	2.00
1988	1.25	**1.25**										

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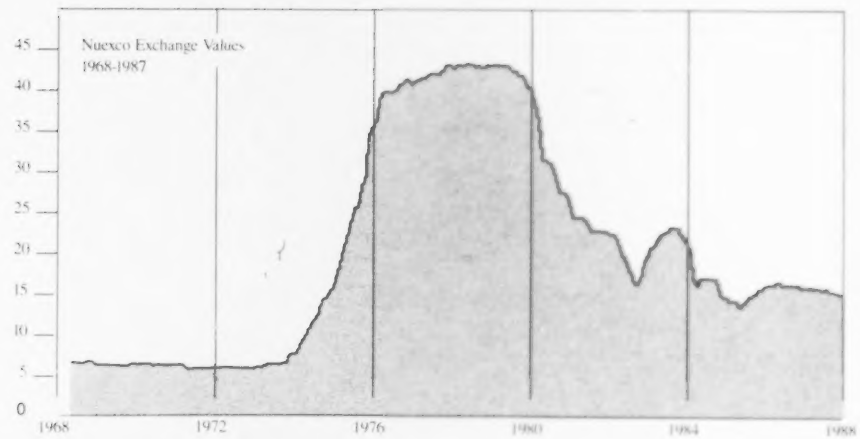
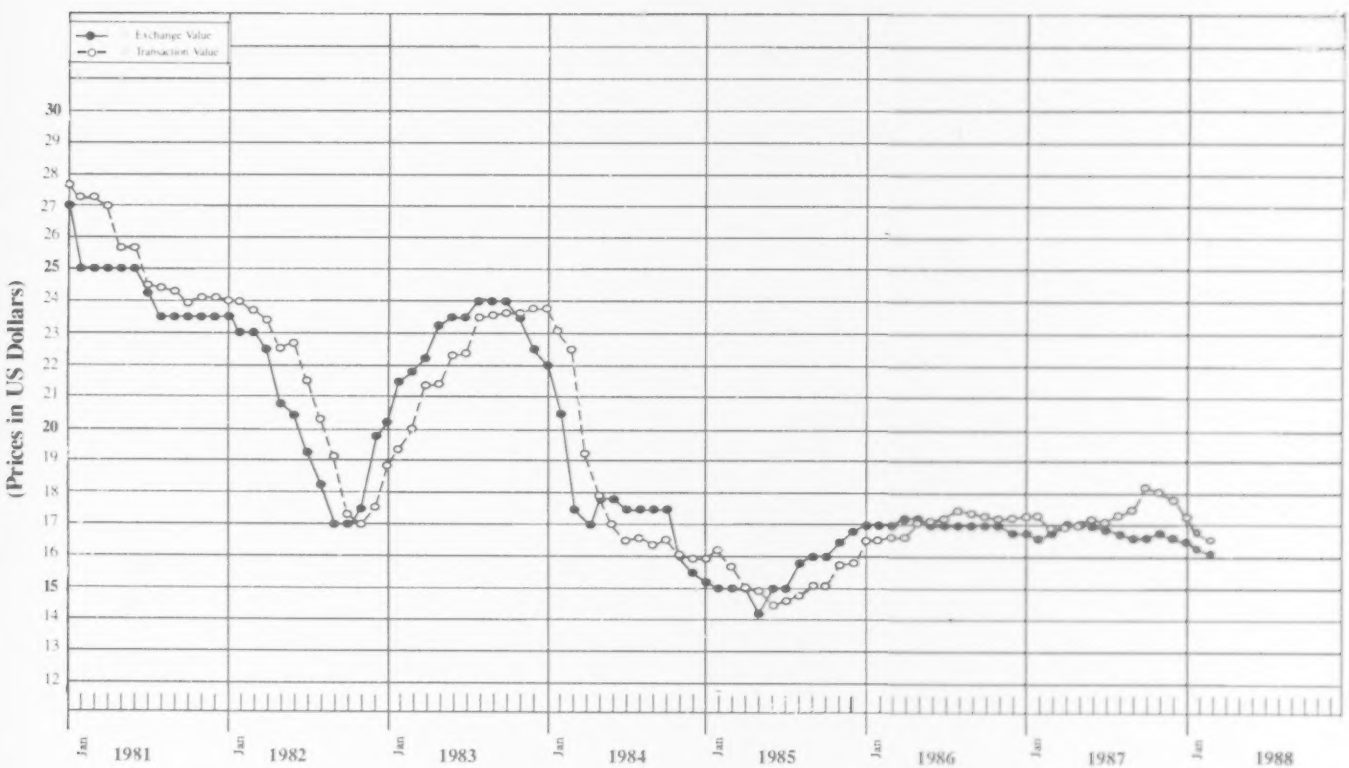

Nuexco Exchange Values
1968-1987
45
40
35
30
25
20
15
10
5
0
1968
1972
1976
1980
1984
1988


Exchange Value
Transaction Value
(Prices in US Dollars)
30
29
28
27
26
25
24
23
22
21
20
19
18
17
16
15
14
13
12
Jan
1981
Jan
1982
Jan
1983
Jan
1984
Jan
1985
Jan
1986
Jan
1987
Jan
1988

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HISTORICAL MARKET DATA

US URANIUM MARKETING ACTIVITIES STATISTICS[1]
(Compiled from data published by the US Energy Information Administration)

Year	Total Production[2] (million pounds U_3O_8)	Deliveries to Domestic Utilities[3] (million pounds U_3O_8)	Average Price of Delivered Uranium ($/lb. U_3O_8)	Quantity of Uranium Imported[4] (million pounds U_3O_8)	Average Price of Imported Uranium ($/lb. U_3O_8)	Quantity of Uranium Exported (million pounds U_3O_8)
1976	25.5	n/a	n/a	3.6	n/a	1.2
1977	29.9	n/a	n/a	5.6	n/a	4.0
1978	37.0	n/a	n/a	5.2	n/a	6.8
1979	37.5	33.0[5]	$23.85[5]	3.0	n/a	6.2
1980	43.7	35.0[5]	$28.15[5]	3.6	$43.10	5.8
1981	38.5	32.6[5]	$34.65[5]	6.6	$32.90	4.4
1982	26.9	27.1	$38.37	17.1	$27.23[6]	6.2
1983	21.2	24.2	$38.21	8.2	$26.16	3.3
1984	14.9	22.5	$32.65	12.5	$21.86	2.2
1985	11.3	21.7	$31.43	11.7	$20.08	5.3
1986	13.5	18.9	$30.01	13.5	$20.07	1.6

[1]Sources: 1979: US Department of Energy, Assistant Secretary for Resource Applications, Office of Uranium Rresources and Enrichment, *Survey of United States Uranium Marketing Activity*, DOE/RA-0053 (Washington DC, July 1980). 1980-1981: US Department of Energy, ASsistant Secretary for Nuclear Energy, Office of Uranium Enrichment and Assessment, *Survey of United States Marketing Activity*, DOE/NE-0013 and DOE/NE-0013/1 (Washington DC, June 1981 and July 1982). 1982: Energy Information Administration, *1982 Survey of United States Marketing Activity*, DOE/EIA-0403 (Washington DC, September 1983). 1983: Energy Information Administration, *Survey of United States Marketing Activity 1983*, DOE/EIA-0403(83) (Washington DC, August 1984). 1984: Energy Information Administration, Form EIA-858, "Uranium Industry Annual Survey" (1984). 1985: Energy Information Administration, Form EIA-858, "Uranium Industry Annual Survey" (1985).

[2]Sources: 1976-11982: US Department of Energy, Grand Junction Area Office, *Statistical Data of the Uranium Industry*, GJO-100 (Grand Junction, Colorado, January 1983). 1983: Calculated by the staff of the Nuclear and Alternate Fuels Division, Office of Coal, Nuclear, Electric and Alternate Fuels, Energy Information Administration, from US Department of Energy, Grand Junction Area Office data files. 1984: Energy Information Administration, Form EIA-858, "Uranium Industry Annual Survey" (1984). 1985: Energy Information Administration, Form EIA-858, "Uranium Industry Annual Survey" (1985).

[3]Excludes direct imports by domestic utilities.

[4]Includes imports by domestic utilities and domestic suppliers.

[5]Includes delivery commitments to domestic utilities and agents.

[6]Computation of quantity-weighted average price excludes the quantity associated with a large exchange (swap) transaction that occurred in 1982.

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VOLUME AND PRICE OF URANIUM DELIVERIES TO THE EUROPEAN COMMUNITY[1]
(Compiled from data published by the Euratom Supply Agency)

Year	Volume of Deliveries to the EC[2] (in MTU)	Percentage of Deliveries Made Under Spot Contracts	Medium or Long-Term Contracts[3,4]		Spot Contracts[3,4]	
			Average Price in ECU per pound U_3O_8	Average Price in US Dollars per pound U_3O_8	Average Price in ECU per pound U_3O_8	Average Price in US Dollars per pound U_3O_8
1977	n/a	n/a	n/a	n/a	n/a	$41.00
1978	n/a	n/a	n/a	n/a	n/a	$43.00
1979	10,000	n/a	n/a	n/a	n/a	$44.50
1980	8,600	n/a	n/a	$36.00	n/a	$35.00
1981	13,000	less than 10	n/a	$33.25	n/a	$28.00
1982	12,500	less than 10	ECU 32.25	$32.00	ECU 24.25	$24.00
1983	13,500	less than 10	ECU 34.75	$31.00	ECU 26.00	$23.25
1984	11,000	less than 10	ECU 37.75	$29.75	ECU 24.50	$19.25
1985	11,000	11.5	ECU 38.00	$29.00	ECU 19.50	$15.00
1986	12,000	9.5	ECU 31.50	$31.00	ECU 18.00	$17.75

[1]The twelve European Community member nations are Belgium, Denmark, France, the Federal Republic of Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, and the United Kingdom; prior to January 1986, Spain and Portugal were not members of the EEC.

[2]The only deliveries taken into account are those made to final users, namely the electric utilities or their procurement organizations; deliveries to middlemen or fuel cycle companies are not included. The sales between utilities in the Community are also excluded. The quantities covered are those which were entered into accounting records during the year stated.

[3]For deliveries made under medium or long-term contracts (i.e., for which the time between the date of signature and the date of the last delivery exceeds one year) the prices were expressed in seven different currencies. In order to calculate an average price, these prices have been converted into European Currency Units (ECU) and US dollars. The average prices were weighted by quantity and converted on the basis of the average annual exchange rate of the different currencies against the ECU and US dollar.

[4]Exchange rates are published by European Communities Statistical Office and the International Monetary Fund.

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GOVERNMENT STATISTICS

AUSTRALIA

		Consumer Price Index[1] (1980/1981 = 100)	Price Index of Materials Used in Manufacturing Industry — All Groups[2] (1984/1985 = 100)	Award Rates of Pay Indexes Australia - Adult Males In Mining Wage Earners, Weekly Rates[3] (June 1976=100)
1975	Avg.[4]	57.9	36.3	82.1
1976	Avg.	65.7	40.7	99.7
1977	Avg.	73.8	46.3	110.8
1978	Avg.	79.7	52.0	117.7
1979	Avg.	86.9	69.5	127.9
1980	Avg.	95.8	83.1	140.8
1981	Avg.	105.0	85.9	154.1
1982	Avg.	116.7	89.0	174.9
1983	Avg.	128.5	96.9	181.9
1984	Avg.	133.6	98.0	194.4
1985	Avg.	142.6	107.3	202.7
1986	Avg.	155.5	101.5	213.0
Jan	1987	—	106.2	215.9
Feb	1987	—	108.9	216.5
Mar	1987	164.7	108.4	222.2
Apr	1987	—	108.3	222.2
May	1987	—	108.1	222.0
June	1987	167.2	108.1	221.8
July	1987	—	108.7	221.1
Aug	1987	—	110.5	222.3
Sep	1987	170.0	109.3	223.1
Oct	1987	—	108.6	—
Nov	1987	—	110.0	—

P = Preliminary R = Revised since last month

[1]Weighted average of six State capital cities (1975 to 1980), and eight capital cities from 1981 (Base: Financial year July 1980 to June 1981 =100.0). Figures shown at end of quarter represent quarterly average.

[2]Australian Bureau of Statistics, Canberra: "Price Index of Materials Used in Manufacturing Industry" (Catalogue No. 6411.0).

[3]Australian Bureau of Statistics, Canberra: "Award Rates of Pay Indexes, Australia" (Catalogue No. 6312.0). Figures for the latest fourteen months shown are subject to revision.

[4]Monthly data for the period 1967 to 1986 appear in Report 233.

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CANADA

				Wage-earner Data: Average Hourly Earnings (C$)[2]				
		Industrial Products Price Index: All Commodities[1] (1981 = 100)	Consumer Price Index: All Items (1981 = 100)	Uranium Mines (SIC 057)	Metal Mines (SIC 051-059)	Mines, Quarries and Oil Wells[3] (SIC 051-099)	Metal Rolling, Casting and Extruding (SIC 298)	Chemicals and Chemical Products Industries (SIC 372-379)
1979	Avg.	80.0	80.7	—	—	—	—	—
1980	Avg.	90.7	88.9	—	—	—	—	—
1981	Avg.	100.0	100.0	—	—	—	—	—
1982	Avg.	106.7	110.8	—	—	—	—	—
1983	Avg.	110.4	117.2	17.22	—	14.18	10.67	11.10
1984	Avg.	115.4	122.3	17.89	—	14.97	11.11	11.68
1985	Avg.	118.6	127.2	18.53	16.48	15.56	11.85	12.12
1986	Avg.	119.6	132.4	19.38	16.70	15.76	12.28	12.58
Jan	1987	120.0	135.2	19.53	16.93	16.03	12.58	12.89
Feb	1987	119.8	135.8	20.33	17.20	16.21	12.66	13.11
Mar	1986	120.4	136.4	20.04	17.14	16.15	12.58	13.02
Apr	1987	121.2	137.0	20.47	17.38	16.26	11.99	13.27
May	1987	122.0	137.8	20.50	17.12	15.96	11.44	13.19
June	1987	122.5	138.2	20.23	16.94	15.70	12.77	12.88
July	1987	123.2R	139.2	19.75	16.73	15.63	12.52	12.98
Aug	1987	123.8R	139.3	19.64	16.98	15.87	12.65	13.03
Sep	1987	124.0	139.3	19.85	17.20	16.25	12.57	13.40
Oct	1987	124.4R	139.8	20.06	17.31	16.33	13.01	13.37
Nov	1987	125.1R	140.4	20.47	17.50R	16.50R	12.63R	13.53R
Dec	1987	125.4R	140.5	20.96P	17.32P	16.42P	12.52P	13.66P
Jan	1988	126.4	140.8	—	—	—	—	—

P = Preliminary R = Revised since last month

[1]Statistics Canada, Prices Division, Ottawa: "Industry Price Indexes" (Catalogue 62-011). Indexes for the most recent six months shown are subject to revision. This category was formerly known as "Manufacturing." Monthly data for the period 1967 to 1986 is found in Report 233.

[2]Statistics Canada, Labour Division, Employment and Payrolls Section, Ottawa: "Employment, Earnings and Hours." Monthly data for the period 1983 to 1986 is found in Report 233.

[3]Reports 175 through 185 list this series title incorrectly as "Metal Mining, Including Milling (SIC 050-099)."

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GOVERNMENT STATISTICS

REPUBLIC OF SOUTH AFRICA

		Average Declared Working Costs per Metric Ton of Gold Ore Milled (Rand)[1]	Tonnage-Weighted Index of Average Working Costs per Metric Ton of Gold Ore Milled (March 1982 = 100)[2]	Consumer Price Index[3] (1985 = 100)	Production Price Index All Groups[4] (1980 = 100)	Total Employment in Mining and Quarrying[5]	Total Salaries and Wages in Mining and Quarrying (1,000 Rand)[5]
1975	Avg.	16.71	—	29.4	52.1	639,473	1,003,217
1976	Avg.	19.30	—	32.7	59.9	671,240	1,212,983
1977	Avg.	23.87	—	36.3	67.7	712,006	1,420,670
1978	Avg	27.74	—	40.3	74.3	658,261	1,502,975
1979	Avg.	30.18	—	45.6	85.6	686,599	1,795,638
1980	Avg.	35.53	—	51.9	100.0	709,042	2,237,689
1981	Avg.	41.89	—	59.8	113.6	722,918	2,756,928
1982	Avg.	47.25	104.2	68.6	129.4	702,041	3,181,584
1983	Avg.	51.88	115.0	77.1	143.1	700,901	3,563,282
1984	Avg.	58.95	130.3	86.0	155.1	711,511	4,134,390
1985	Avg.	68.76	151.6	100.0	181.2	724,587	4,778,612
1986	Avg.	80.22	177.9	118.6	216.6	756,637	5,767,950
Jan	1987	—	—	128.9	233.9	750,496	529,682
Feb	1987	—	—	130.3	237.0	757,872	598,986
Mar	1987	88.17	197.1	132.4	239.6	762,697	536,006
Apr	1987	—	—	134.1	242.5	761,850	533,487
May	1987	—	—	135.6	243.6	759,428	530,918
Jun	1987	90.74	203.5	136.6	244.9	759,433	573,546
July	1987	—	—	138.2	246.8	681,409	542,908
Aug	1987	—	—	140.2	249.9	—	—
Sep	1987	100.79	224.7	142.0	252.4	—	—
Oct	1987	—	—	143.6	255.5	—	—
Nov	1987	—	—	144.8	257.1	—	—
Dec	1987	100.34	267.0	145.9	258.3	—	—
Jan	1988	—	—	147.2	—	—	—

P = Preliminary R = Revised since last month

[1]Chamber of Mines of South Africa, Johannesburg: "Analysis of Working Results," published quarterly.
[2]Page 16 of Report 178 contains description and calculation of index, and page 24 of Report 178 lists figures for 1982.
[3]Central Statistical Service, Pretoria: All income groups-weighted average.
[4]Central Statistical Service, Pretoria: All commodities for consumption in South Africa.
[5]Central Statistical Service, Pretoria.

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UNITED STATES

		Producer Price Index[1]		Consumer Price	GNP Implicit Price	Gross Average Hourly Earnings of Production or Non-supervisory Workers (US$)[4]			
		Industrial Commodities (1967 = 100)	All Commodities (1967 = 100)	Index[2] (1967 = 100)	Deflator[3] (1982 = 100)	Metal Mining (SIC 10)	Primary Non-ferrous Metals (SIC 333)	Chemicals and Allied Products (SIC 28)	Electric and Electronic Equipment (SIC 36)
1980	Avg.	274.8	268.8	246.8	85.7	10.26	10.63	8.30	6.94
1981	Avg.	304.1	293.4	272.4	94.0	11.55	11.98	9.12	7.62
1982	Avg.	312.3	299.3	289.1	100.0	12.31	12.93	9.96	8.21
1983	Avg.	315.7	303.1	298.4	103.9	12.58	13.43	10.58	8.67
1984	Avg.	322.6	310.3	311.1	107.7	13.05	13.43	11.07	9.04
1985	Avg.	323.8	308.7	322.2	111.2	13.38	13.74	11.56	9.46
1986	Avg.	312.2	299.8	328.4	114.1	13.20	13.49	11.98	9.65
Jan	1987	313.5	300.9	333.1	—	12.94	12.98	12.18	9.84
Feb	1987	314.9	302.2	334.4	—	12.99	12.83	12.21	9.84
Mar	1987	315.7	302.7	335.9	116.1	13.04	12.79	12.24	9.84
Apr	1987	317.3	305.0	337.7	—	13.16	12.90	12.30	9.82
May	1987	318.3	307.1	338.7	—	12.97	12.92	12.31	9.83
Jun	1987	319.9	308.2	340.1	117.2	13.05	12.93	12.27	9.84
Jul	1987	322.1	309.8	340.8	—	13.06	13.07	12.37	9.89
Aug	1987	323.8	310.6	342.7	—	13.03	13.07	12.34	9.90
Sep	1987	323.3	310.4	344.4	117.8	13.19	13.44	12.56	9.98
Oct	1987	324.9	311.4	345.3	—	12.96	13.06	12.52	9.95
Nov	1987	325.4	311.9	345.8	—	12.89	13.10R	12.56R	10.00R
Dec	1987	325.3	311.7	345.7	118.7	12.78P	13.16P	12.61	10.07R
Jan	1988	104.3[5]	104.5[5]	115.7	—	—	—	12.62P	10.05P

P = Preliminary R = Revised since last month

[1]US Bureau of Labor Statistics, Washington, D.C.: "Producer Prices and Price Indexes," (formerly "Wholesale Prices and Price Indexes"). Producer Price Indexes are revised four months after they are first released to reflect the availability of late reports and corrections by respondents. Historical data is presented in Report 233.

[2]US Bureau of Labor Statistics, Washington, D.C.: Consumer Price Index for All Urban Consumers, US City Average, All Items. Historical data is presented in Report 233.

[3]US Department of Commerce, Washington, D.C.: Bureau of Economic Analysis, National Income and Wealth Division: "Survey of Current Business." The GNP Implicit Price Deflator is published quarterly, and seasonally adjusted. Historical data is presented in Report 233.

[4]US Bureau of Labor Statistics, Washington, D.C.: "Employment and Earnings." All data based on 1972 revision of SIC Manual. Historical data is presented in Report 233.

[5]1982 = 100.

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